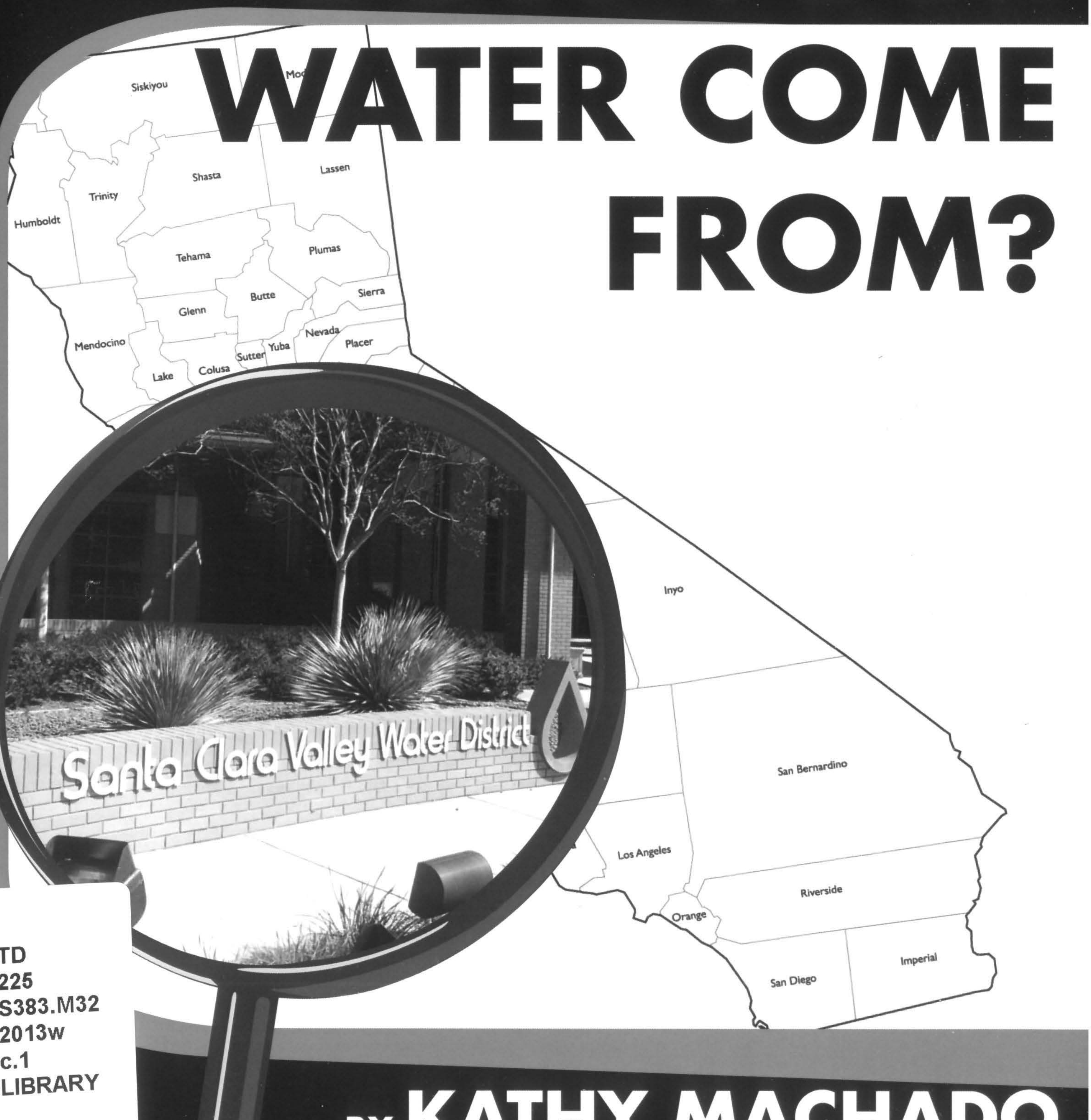
Santa Clara Valley
Water District

WHERE DOES YOUR WATER COME FROM?



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BY KATHY MACHADO

Special Notes

Directions to teachers: *Direct students to...*

- Take the pretest on page 1 to see how much you know about where your water comes from.
- Read the the book.
- Take the posttest on page 19 to see what you learned!
- On page 21, use colored pencils/markers to trace the path of water from Mt. Shasta, Lake Oroville, and Hetch Hetchy to Santa Clara County.
- Sing the song on page 22. Write your own poem about where your water comes from.
- Participate in a spelling bee using the words from the glossary on pages 23-24. Give extra credit for definitions.
- Find a picture of the California Aqueduct (*Page 8*), Guadalupe Reservoir (*page 4*), Hetch Hetchy Reservoir (*page 11*), Lake Oroville (*page 7, 18*), Los Capitancillos Recharge Ponds (*Page 9*), Mt. Shasta (*page 2, 7*), Penitencia Water Treatment Plant (*page 10*), Rinconada Water Treatment Plant (*page 6*) and San Jose Water Company Williams Street well (*page 5*).

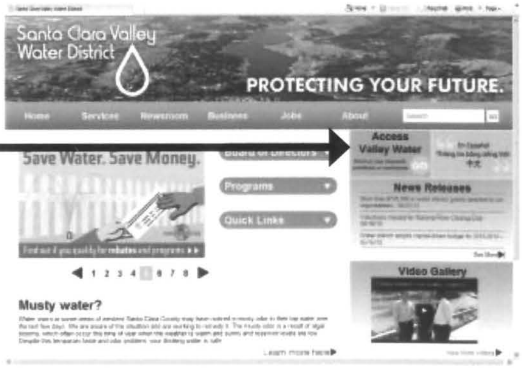
About the Santa Clara Valley Water District

The **Santa Clara Valley Water District** manages an integrated water resources system that includes the supply of clean, safe water, flood protection and stewardship of streams on behalf of Santa Clara County's 1.8 million residents. The district effectively manages 10 dams and surface water reservoirs, three water treatment plants, a state-of-the-art water quality laboratory, nearly 400 acres of groundwater recharge ponds and more than 275 miles of streams. We provide wholesale water and groundwater management services to local municipalities and private water retailers who deliver drinking water directly to homes and businesses throughout Santa Clara County.

Contact us

For more information, contact our school outreach program at **408-630-2331**.

Also, visit our website at *h2cool.org* or *www.valleywater.org*. On the district website, use our **Accesss Valley Water** customer request and information system. With three easy steps, you can use this service to find out the latest information on a project or submit questions, compliments, or complaints directly to a district staff person.



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WHERE DOES YOUR WATER COME FROM?

WRITTEN BY

Kathy Machado

DESIGNED BY

Galen Oback

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Santa Clara Valley
Water District

www.valleywater.org
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What do you know? (Circle correct answers)

1. Do you know where your water comes from? Yes No

If yes, where?____

2. How much water in Santa Clara County comes from the ground?

25% 30% 40% 50%

3. Where does water in the ground originate?

a) reservoirs b) streams c) rain d) percolation ponds e) all

4. How much of the water in Santa Clara County is imported?

35% 45% 55% 65%

5. Which is a source of imported water?

a) Mt. Shasta b) Lake Oroville c) Hetch Hetchy Reservoir d) all

6. How much state and federal imported water is treated?

a) all b) some c) none

7. Where does imported water go?

a) percolation ponds b) treatment plants c) reservoirs

d) a & b e) a & c f) b & c g) a, b & c

8. Do we get water from San Francisco? Yes No

9. Who owns Hetch Hetchy Reservoir?

a) Santa Clara Valley Water District b) the Federal Government

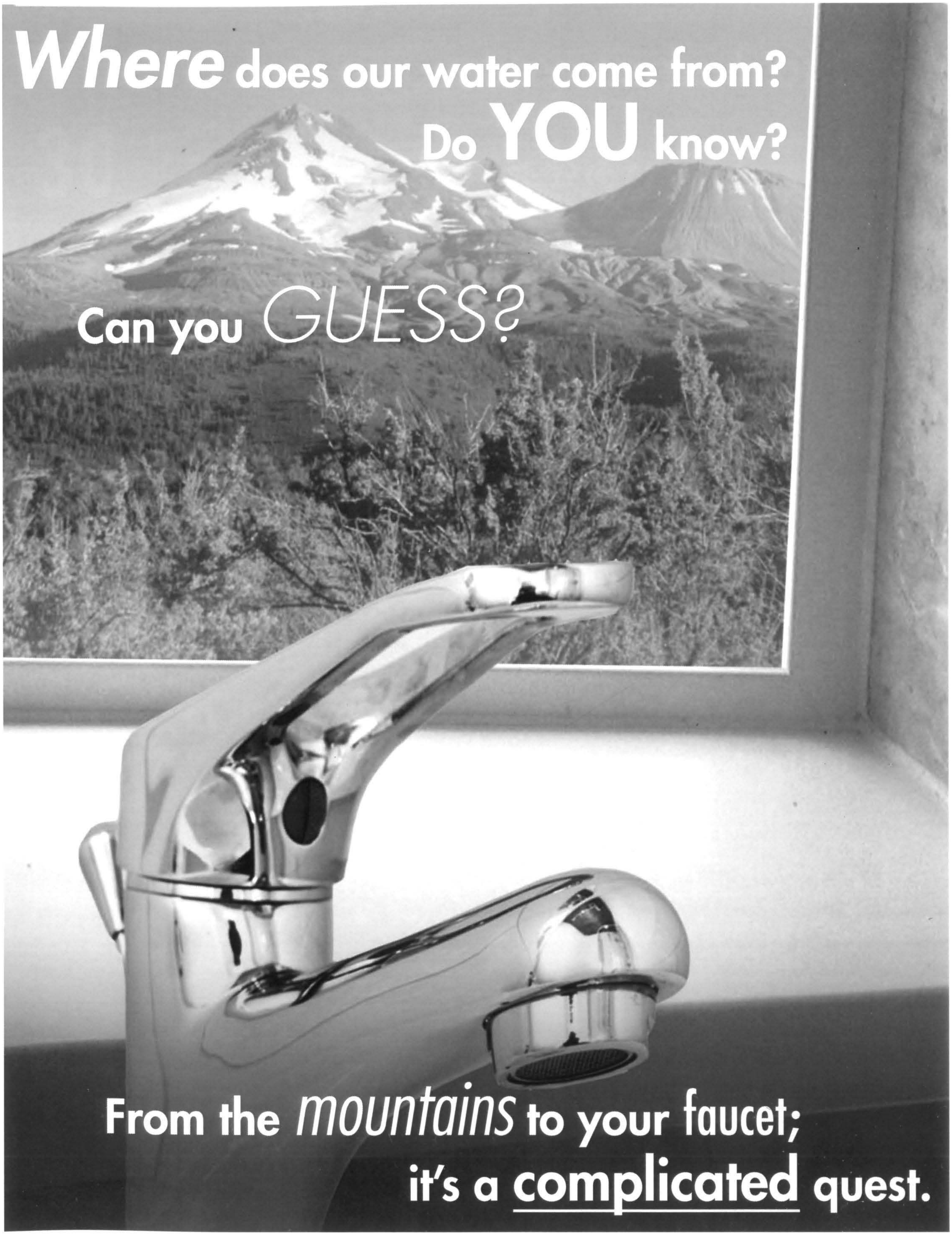
c) San Francisco Public Utilities Commission

10. Are we using recycled water in Santa Clara County? Yes No

11. Circle all the uses for recycled water:

a) golf courses b) school yards c) flush toilets d) coolant in manufacturing

12. Even though we have many sources of water in Santa Clara County, do we still need to save water? Yes No



Where does our water come from?

Do **YOU** know?

Can you *GUESS?*

From the *mountains* to your faucet;

it's a **complicated** quest.

When you turn on the faucet,
what would YOU do if it's

NOT there?

If it's DIRTY,
would you drink it?

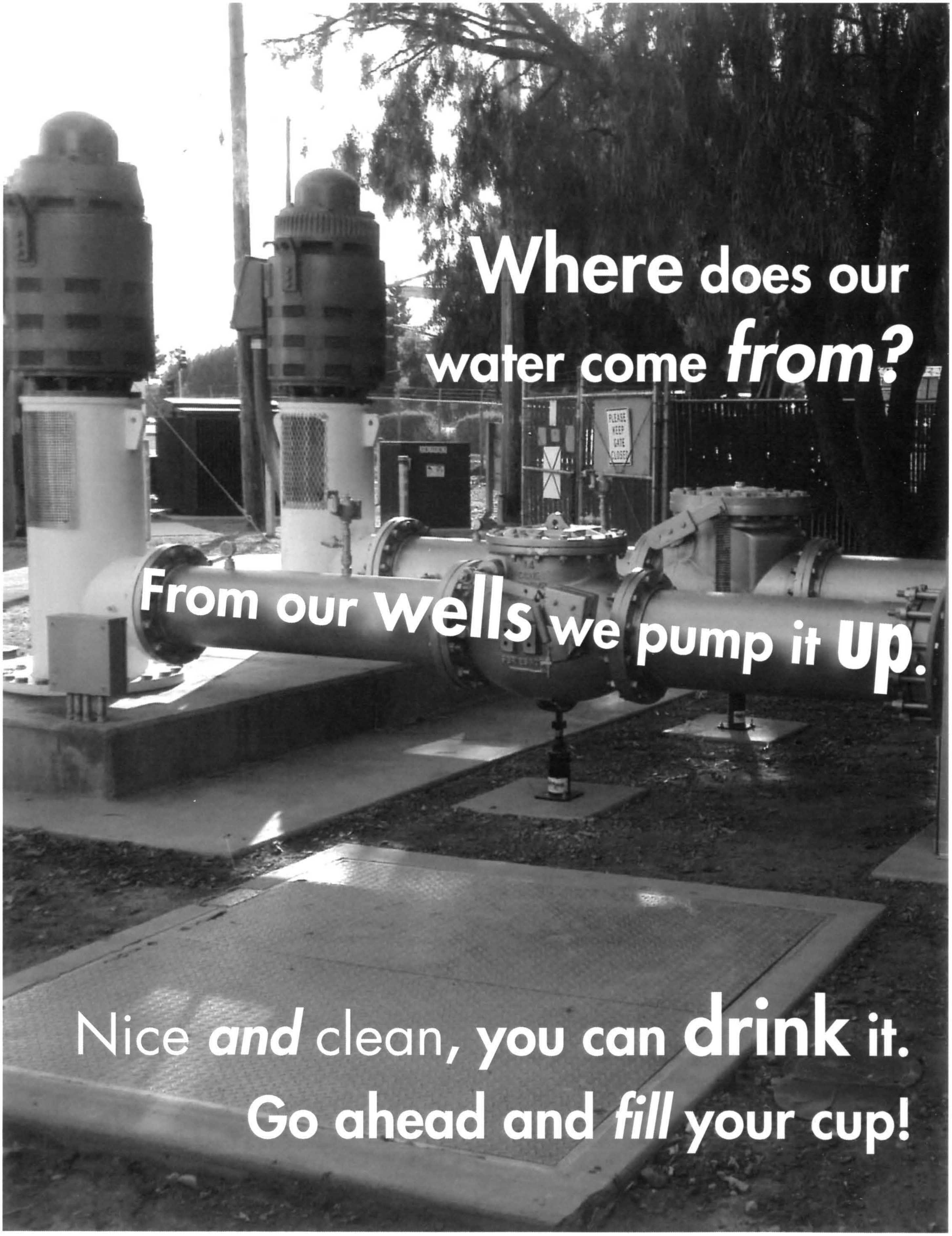
Do you think you even care?

Where does our water come from?

30% is from the ground.

It *seeps* from reservoirs **and** streams

and *rain* that's falling down down: down:

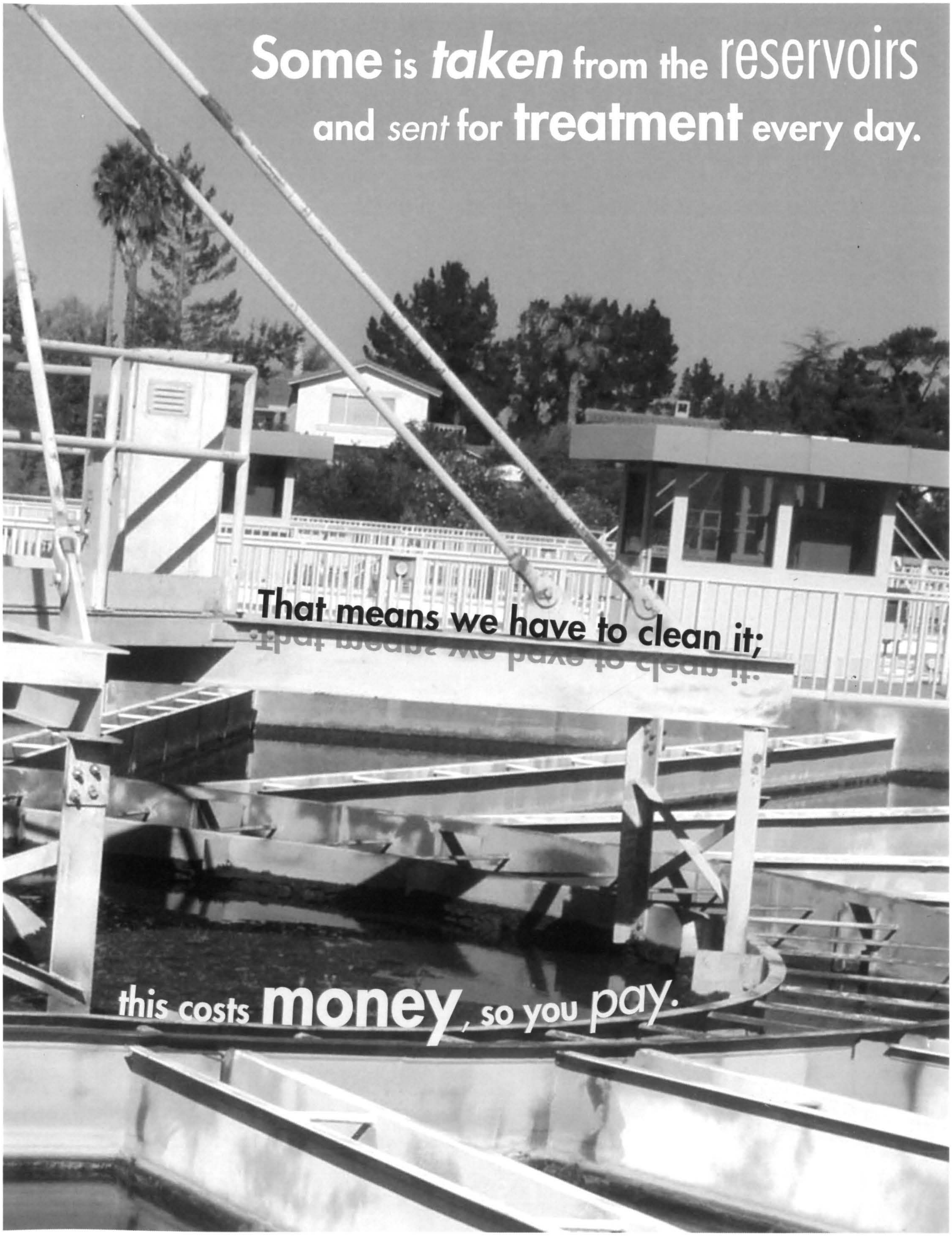


Where does our water come ***from?***

From our **wells** we pump it **up**.

Nice ***and*** clean, **you can drink it.**

Go ahead and *fill* your cup!



Some is ***taken*** from the reservoirs
and *sent* for **treatment** every day.

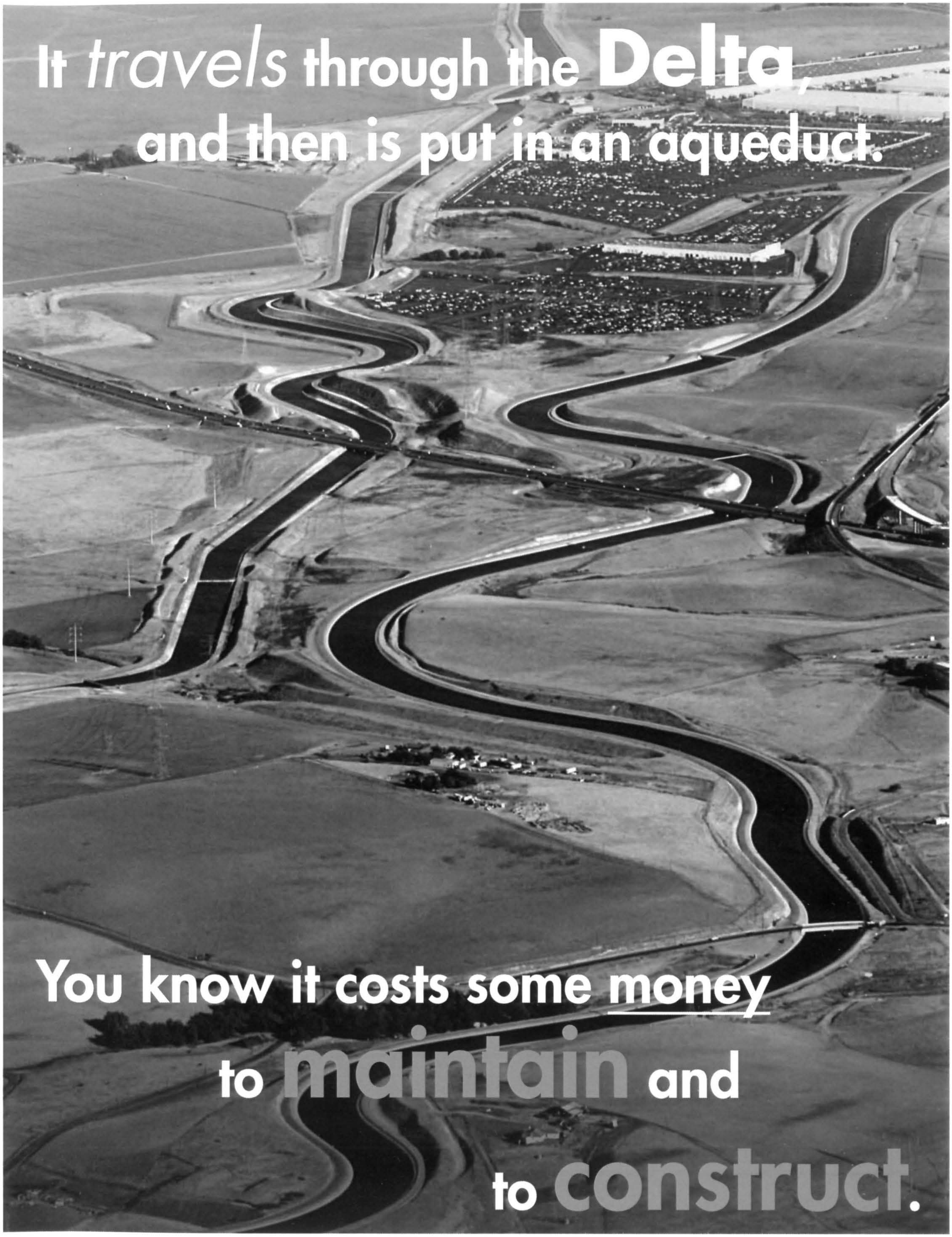
That means we have to clean it;

this costs **money**, so you pay.

WHERE
does our water come from?

We **import** **55%**

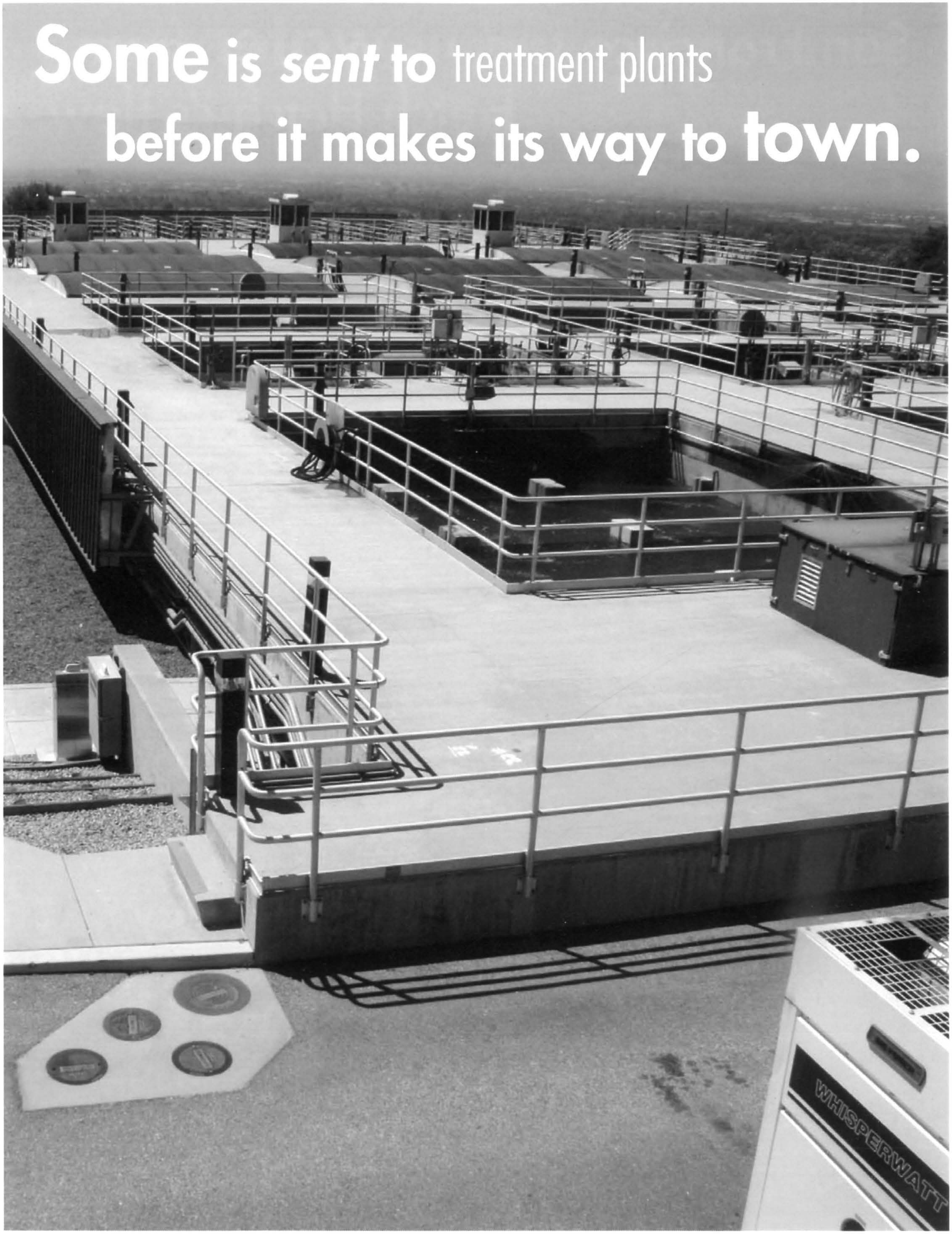
from Lake Oroville **and** Mt. Shasta,
every day the water's sent.

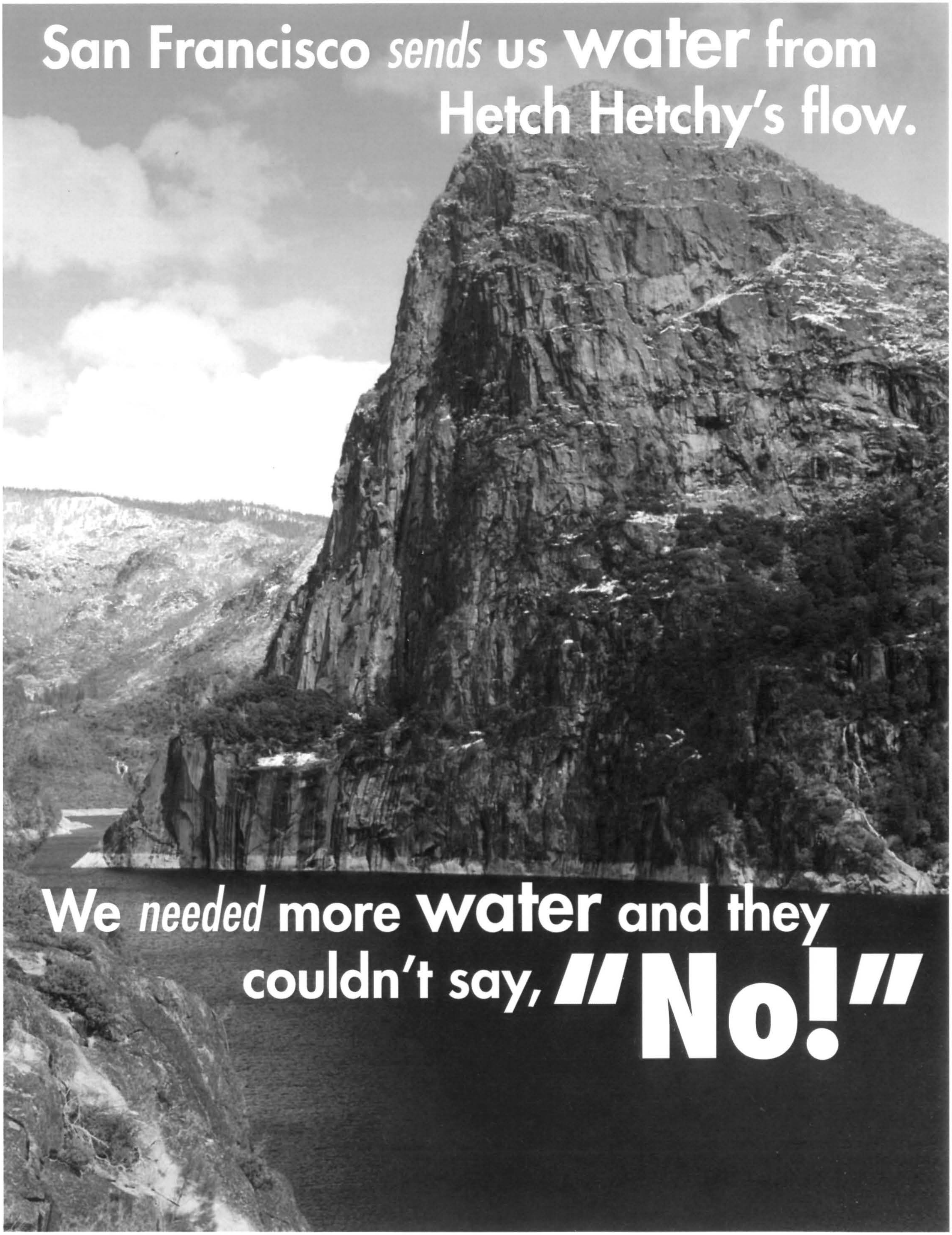


It *travels* through the **Delta**, and then is put in an aqueduct.

You know it costs some money to **maintain** and to **construct**.

Some is ***sent* to** treatment plants **before it makes its way to town.**





San Francisco *sends* us **water** from Hetch Hetchy's flow.

We *needed* more **water** and they couldn't say, **"No!"**

This water goes to **people,** ***not*** for farming the land.

15% of households in the **county** is the ***plan.***

Where does our water come *from?*

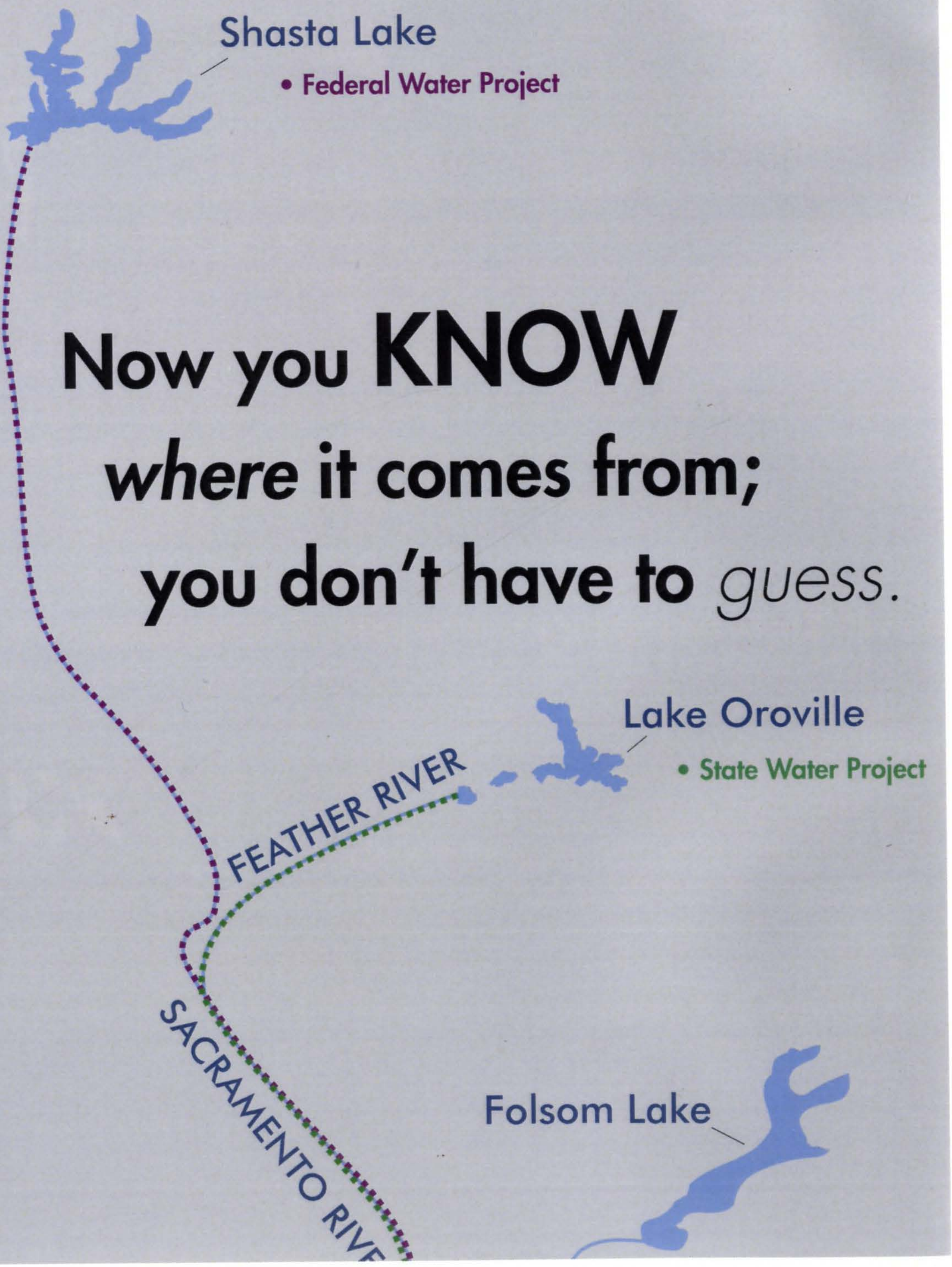
Some is recycled every day.

In purple pipe it is delivered to schools and businesses who *pay.*

This is a small amount of water under local control.

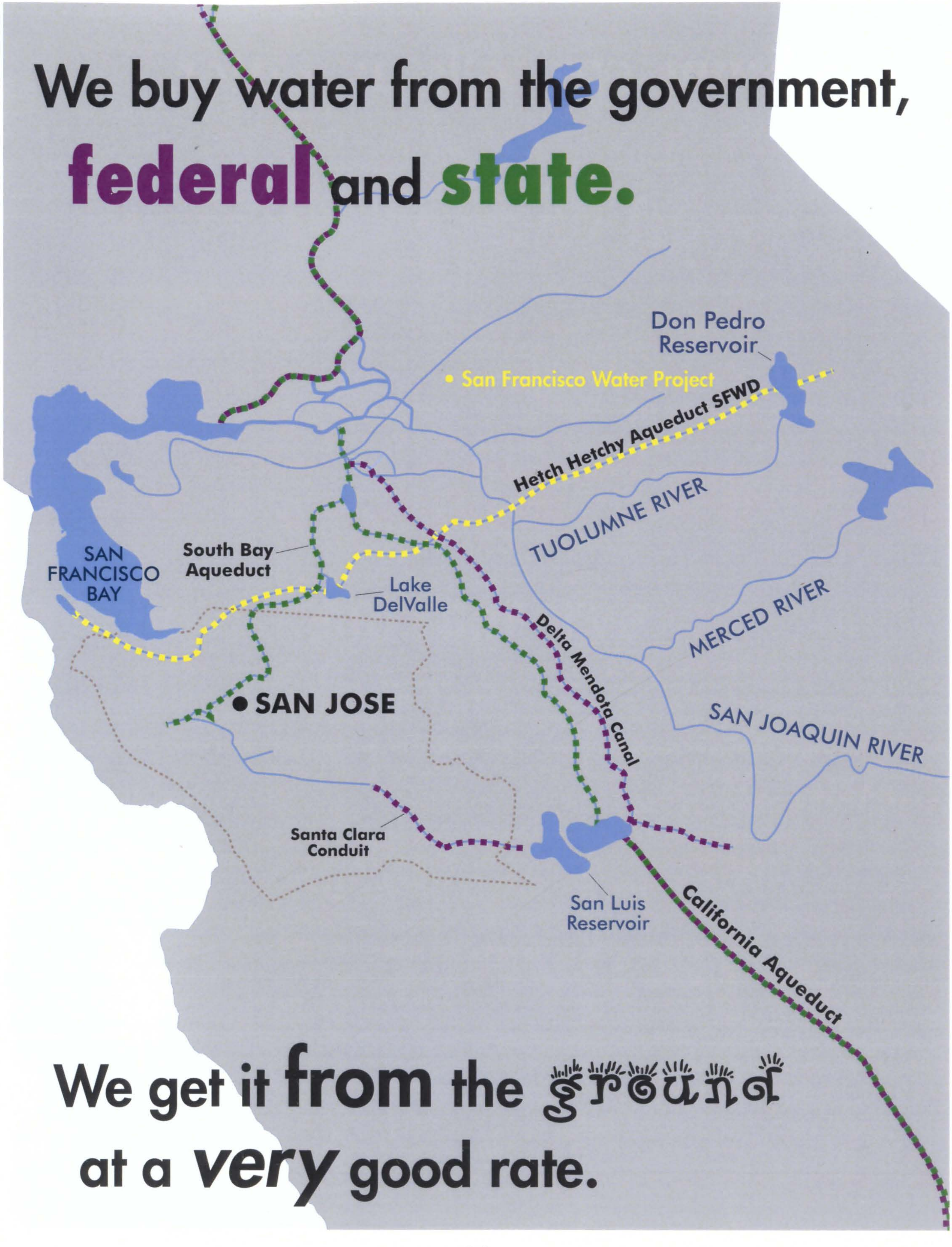
Increasing its use is a water district goal.

Where does our water come *from?*
It's a **complicated** quest.



Now you **KNOW**
where it comes from;
you don't have to *guess.*

We buy water from the government, **federal** and **state.**



We get it **from** the ground at a *very* good rate.

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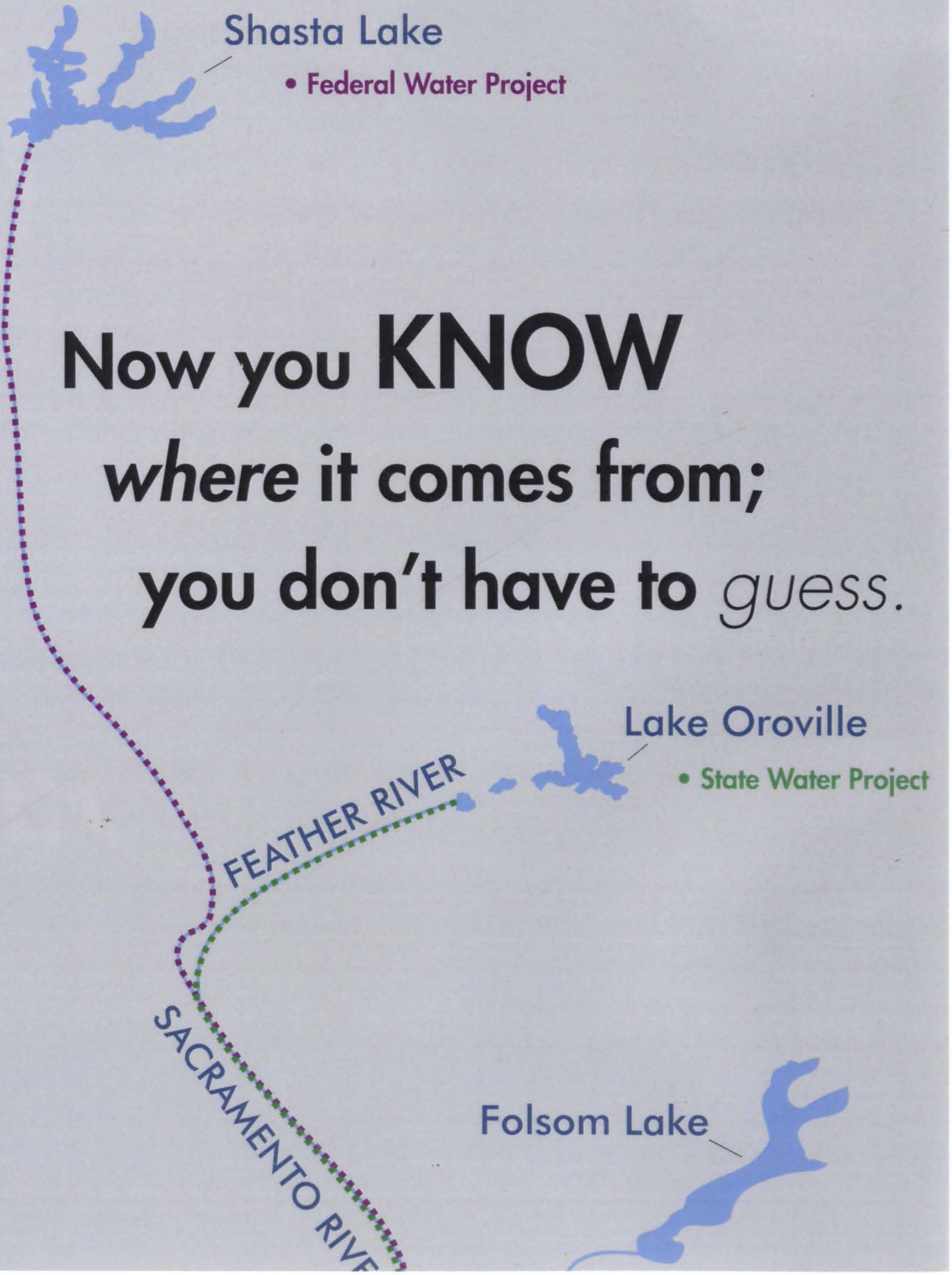

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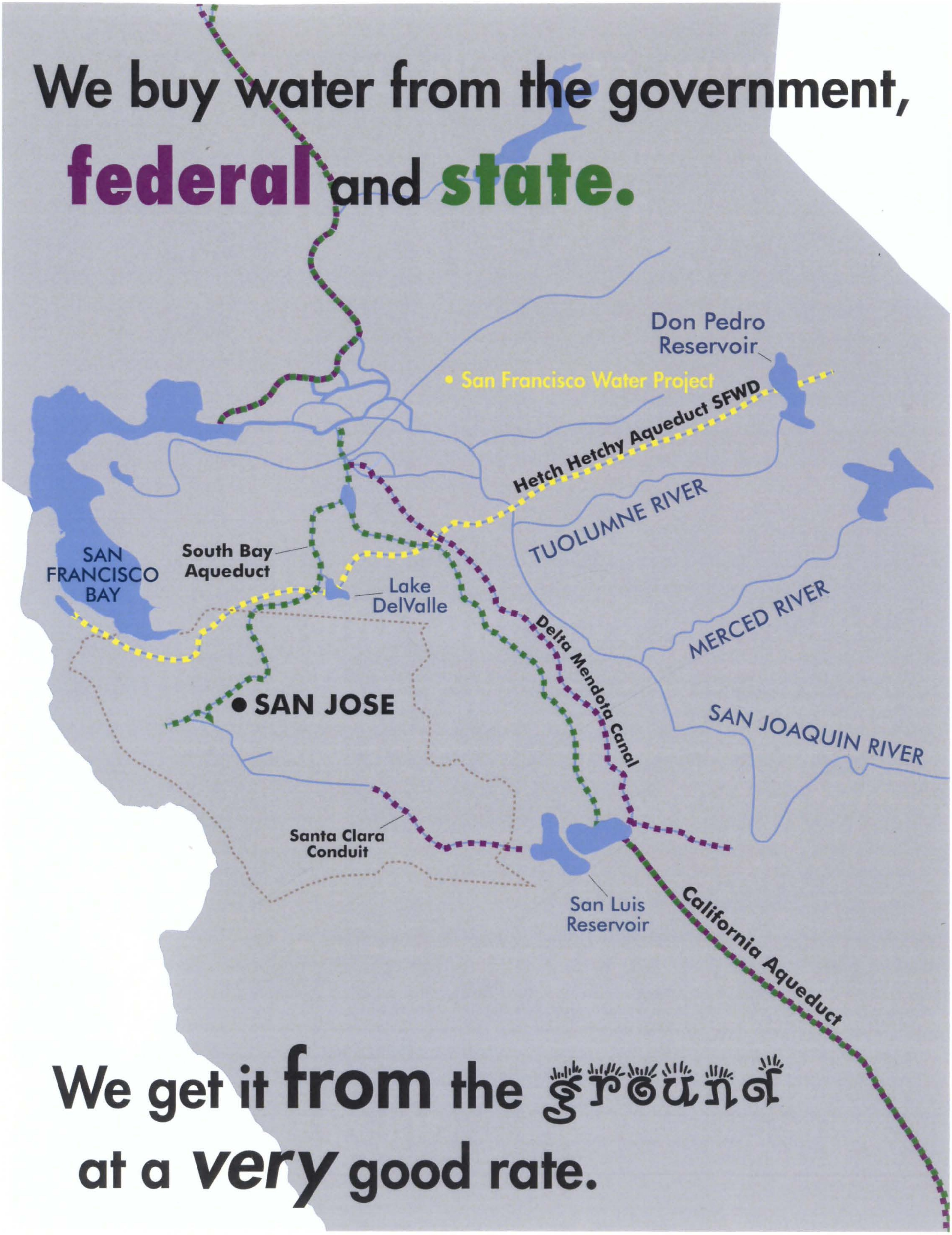

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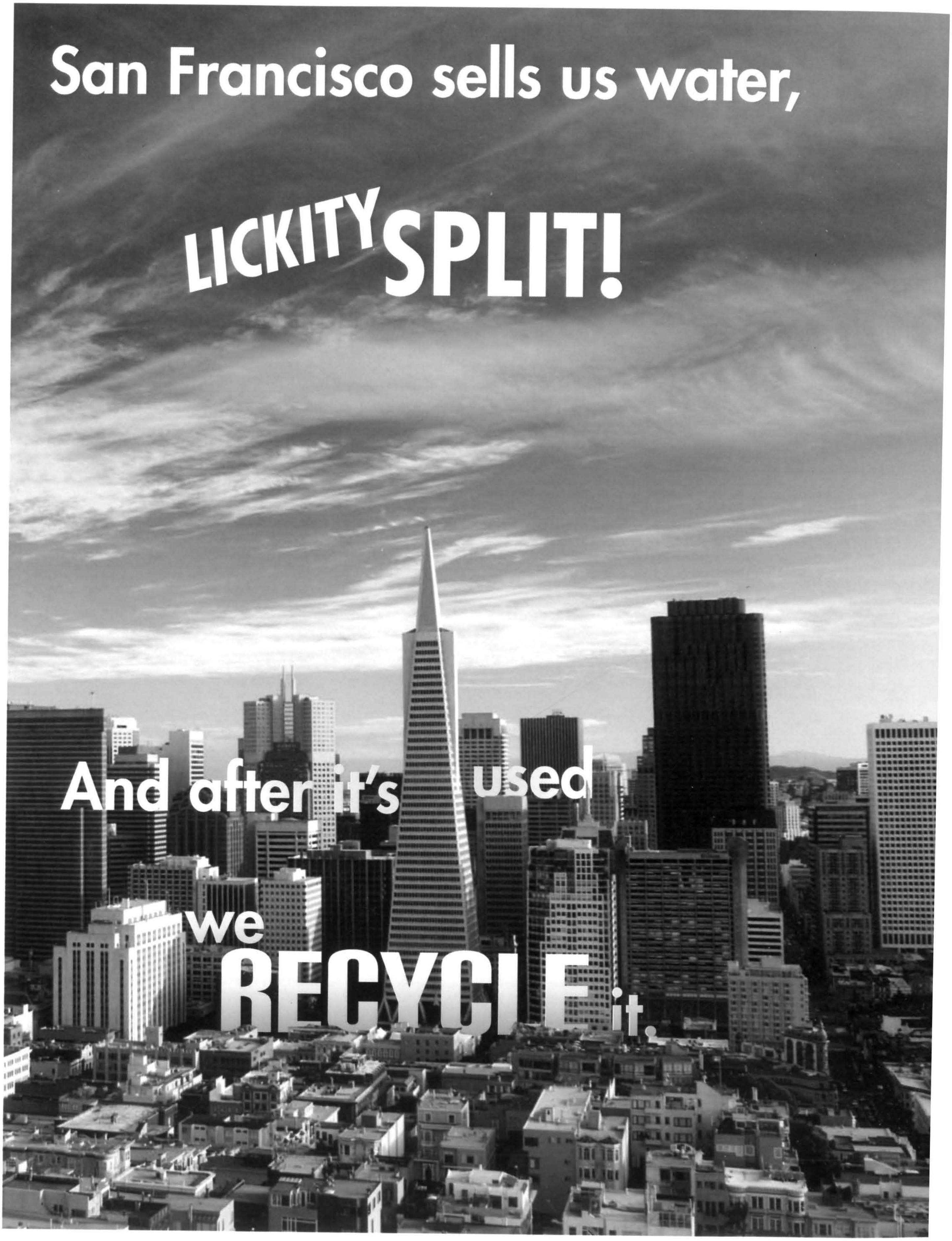
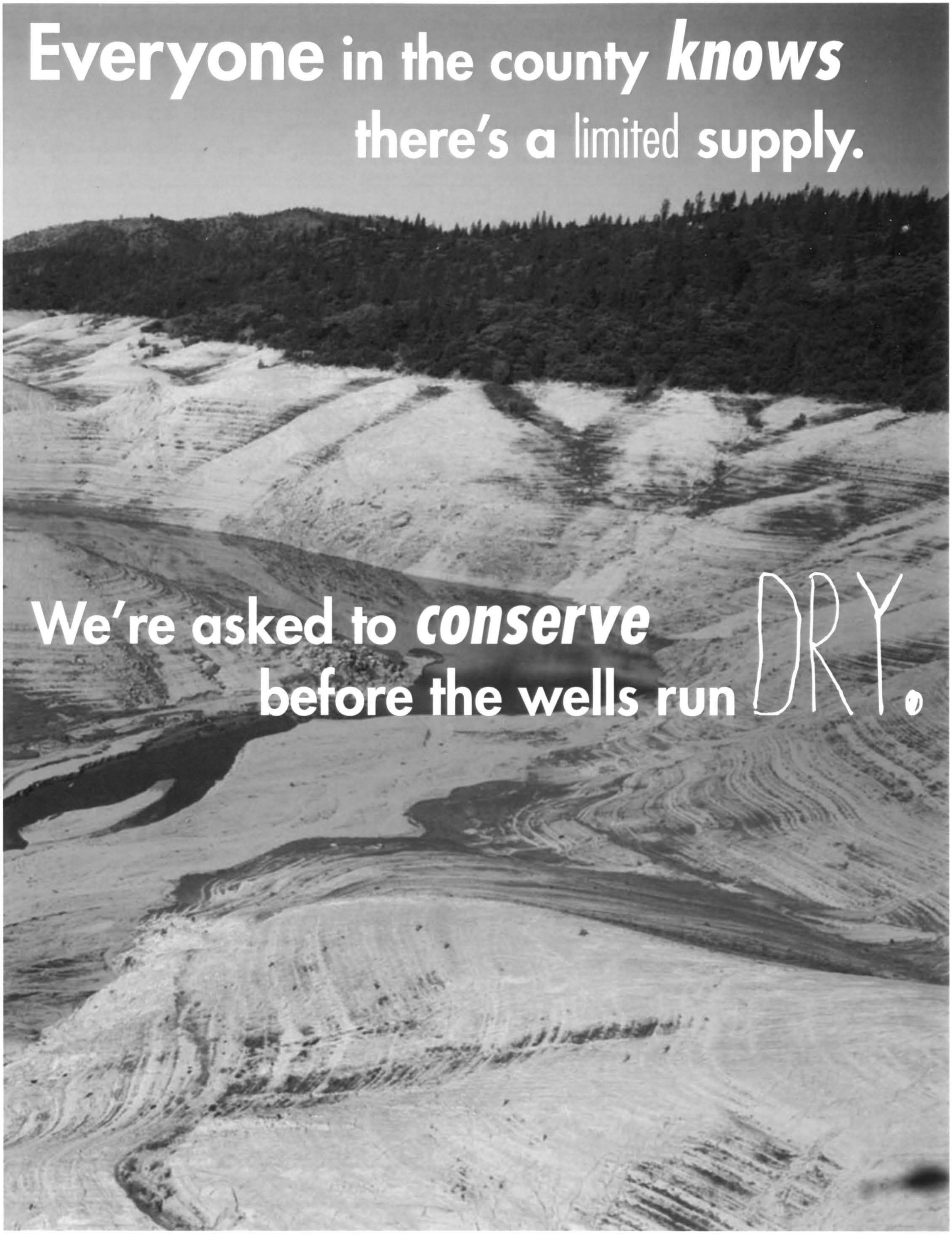

San Francisco sells us water,
LICKITY SPLIT!
And after it's used
we RECYCLE it.



Everyone in the county *knows*
there's a limited supply.

We're asked to *conserve*
before the wells run DRY.

What did you learn? (Circle correct answers)

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Wordsearch

F	A	U	C	E	T	J	L	L	O	A	H	Y	E	D	A	Y	S	M	W
G	R	K	L	B	P	V	X	V	B	F	O	Q	E	N	R	D	E	O	E
N	O	I	T	A	V	R	E	S	N	O	C	L	C	N	L	Q	M	U	L
T	T	E	T	G	D	L	K	A	T	E	T	A	T	O	Q	S	F	N	L
Y	C	R	G	C	F	G	W	T	R	A	S	K	H	G	M	Y	G	T	S
G	H	G	E	N	U	N	R	O	G	A	Q	E	T	A	P	M	C	A	I
H	O	C	P	A	J	D	R	Y	N	S	S	O	E	N	I	A	R	I	C
J	G	V	T	U	T	H	E	F	D	U	K	R	F	J	Z	P	T	N	Z
W	J	O	E	E	K	M	R	U	O	D	T	O	V	M	Y	T	P	S	S
X	F	G	M	R	H	A	E	H	Q	S	G	V	H	B	J	H	N	I	S
P	H	U	F	G	N	H	M	N	E	A	S	I	I	Y	Z	T	M	D	R
U	V	V	I	C	F	M	C	M	T	E	K	L	V	I	U	P	I	E	I
Z	L	D	I	F	Q	U	E	T	H	P	O	L	N	M	O	S	K	L	O
A	T	S	A	H	S	T	M	N	E	A	L	E	G	R	G	T	H	C	V
R	C	P	A	W	W	M	G	P	T	H	O	A	T	R	Y	H	P	Y	R
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K	H	C	C	U	S	H	J	Q	N	H	H	I	L	S	R	Q	N	R	E
S	C	V	W	D	P	R	O	V	I	D	E	S	J	S	I	S	G	D	R
S	A	F	E	C	L	E	A	N	W	A	T	E	R	F	O	R	Y	O	U

Aqueduct

Conservation

Delta

Faucet

Government

Ground

Hetch Hetchy

Households

Imported

Lake Oroville

Mountains

Mt Shasta

Purple Pipe

Rain

Recycled

Reservoirs

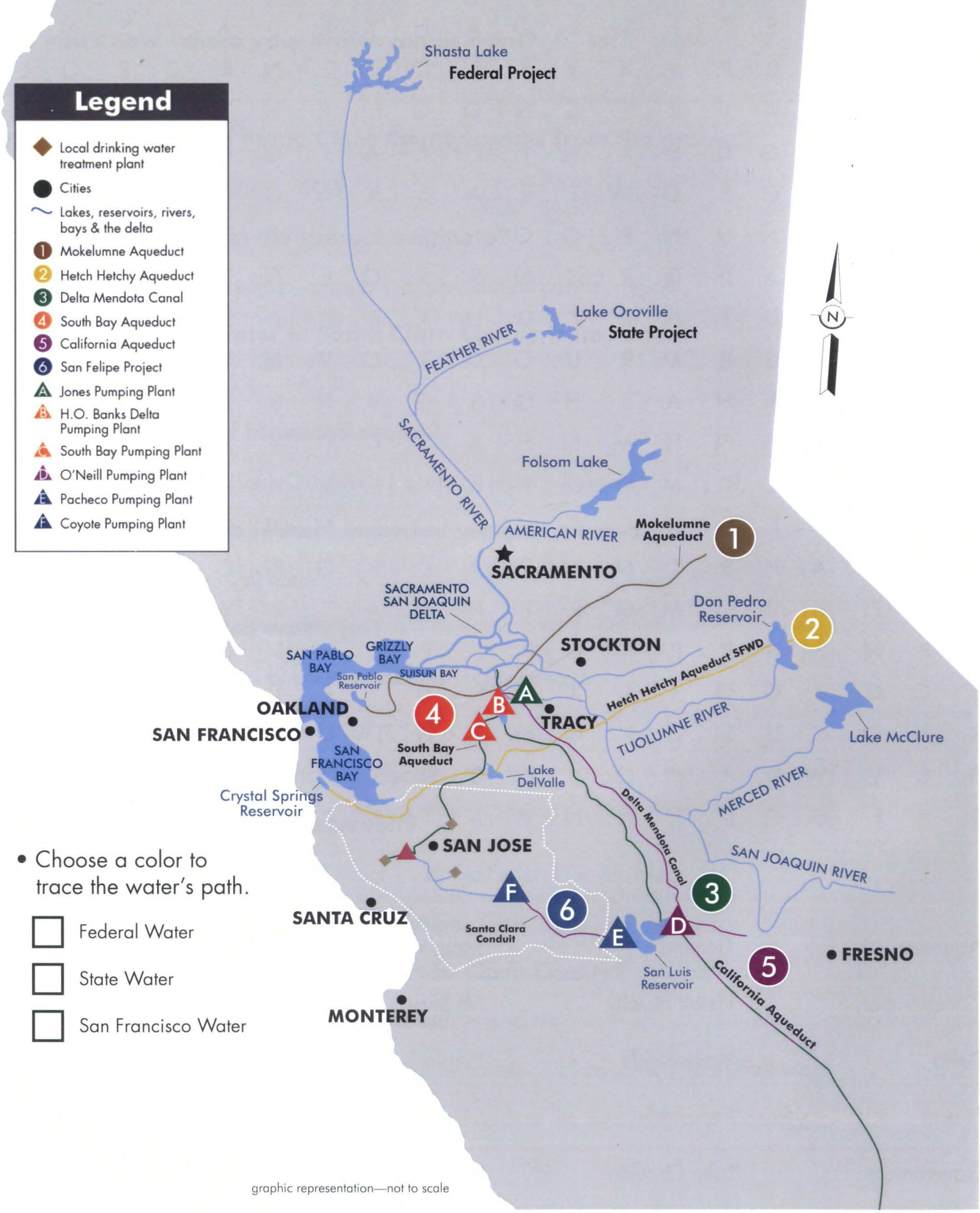
San Francisco

Streams

Treatment Plant

Wells

Where does our water come from?



- Choose a color to trace the water's path.

☐ Federal Water

☐ State Water

☐ San Francisco Water

graphic representation—not to scale

Sources of Water in Santa Clara County

(Tune: Twinkle, Twinkle Little Star)
By Kathy Machado

Where can our water be found?
Thirty percent is from the ground.
From reservoirs, streams and rain,
And percolation ponds, it's plain.
All of this seeps in the ground.
We pump it up, that's where it's found.

Where does our water come from?
We import it; yes, quite a sum!
Fifty-five percent is on its way
From the mountains every day.
Government, federal and state
San Francisco we compensate.

Turn on the tap; what do you see?
Water flowing, it's not free!
Imported and from the ground,
More water had to be found.
Recycled water add to these.
But, save water, won't you please?

Santa Clara County

by the numbers

Water supplies

30% local water
- 15% natural groundwater
- 10% from reservoirs to groundwater
- 5% from reservoirs to drinking water treatment plants

55% imported water
- 15% thru Delta to replenish groundwater
- 25% thru Delta to drinking water treatment plants
- 15% from Hetch Hetchy system

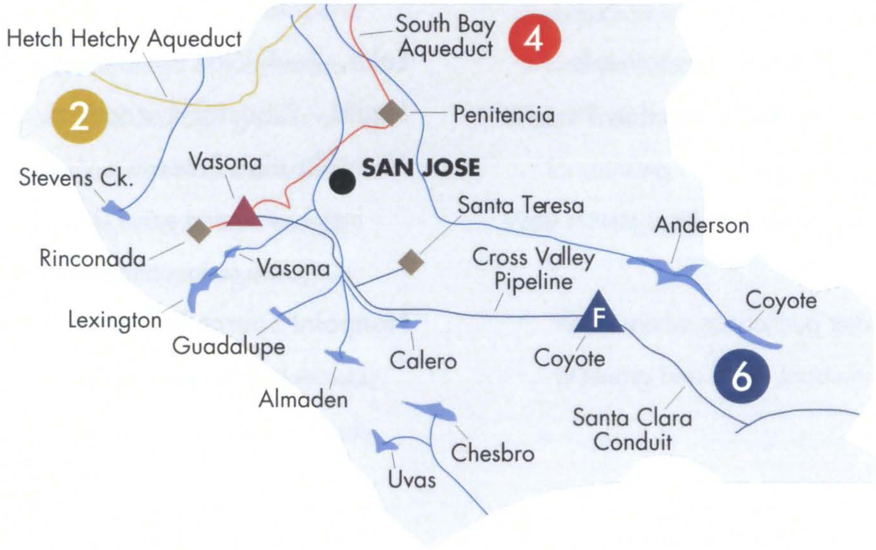
5% recycled water

90%

10% savings needed

100%

a closer look



Glossary

Acre-Foot – Amount of water it takes to cover one acre with one foot of water

Aqueduct – Large pipeline or canal used to transport water

Aquifer – Large underground beds of sand and gravel that hold water

Bacteria – Very small organisms that often cause disease

Channelize – Process of making a stream wider, deeper, straighter or smoother flowing so that it can carry more water

Clarification – Second step of water purification in which chemicals are added to the water to remove most of the impurities

Cloud – Visible mass of tiny water droplets, mixed with vapor, suspended in the air

Condensation – Process where water vapor cools into tiny droplets that collect and form clouds

Decarbonation – This removes carbon dioxide and raises the pH of water reducing corrosion in downstream facilities including the distribution pipelines.

Delta – Triangle-shaped area at the mouth of one or more rivers

Disinfection – Process where chemicals are added to water to kill germs

Drought – Period of time in which little or no rain falls

Evaporation – Process where water is warmed by the sun, turns into vapor and rises into the air

Factory – Manufacturing plant which can be a source of point source pollution

Filtration – Third step of water purification where water flows through layers of charcoal, sand and gravel to remove tiny particles

Flood – An overflowing of water onto land that is normally dry

Flood Control – Reducing the potential for flood damage by channelizing streams and building flood plains

Flood Plain – Area next to a stream that can be flooded during storms without causing damage

Freeze – Turning water from a liquid to a solid

Gallon – Volume of water equal to four quarts; 325,829 gallons = one acre foot

Groundwater – Rain or surface water that has seeped down through the soil to aquifers

Groundwater Recharge – Process of using percolation ponds to replace water taken from an aquifer

Hail – Precipitation in the form of small, solid balls of ice and hard snow

Heavy Metals – Metals, such as lead, zinc, copper and chromium, that can harm fish life when they become dissolved in water

Ice – Solid form of water

Imported Water – water brought from one area to another

Impurities – Things that are dirty and unclean

Inorganic – Involving non-living matter, like minerals and salts

Lake – Fairly large inland body of water

Liquid – Substance that can flow or be poured.

Microfiltration Process – Water is drawn through filter membranes and solids, bacteria, protozoa and some viruses are removed from the water.

Nonpoint Source Pollution – Water pollution caused by a variety of sources that flows into a receiving water through storm water runoff and storm drains

Organic – Living or dead plant or animal matter

Overdraft – To take out more groundwater than is replaced

Percolation – Process where water seeps down into the earth

Point Source Pollution – Pollution coming from a specific point, such as a factory or refinery

Pollution – Condition of dirty or unusable air, water or land; as organic or inorganic matter in wastewater

Precipitation – Rain, snow, sleet, mist or hail; water moving through the air

Primary Treatment – First stage of wastewater treatment that removes solids that settle to the bottom or float to the top of wastewater

Purification – Process of taking impurities out of water

Rain – Liquid water falling to the ground from clouds

Reservoir – Man-made lake used for storing water

Reverse Osmosis – High pressure forces treated water through tightly wound sheets of thin, semipermeable membranes with extremely small pores that only allow water and a few other small molecules to pass through.

River – Flowing body of water

Runoff – Rainfall and other water that flows on the ground into streams, lakes and bays

Secondary Treatment – Second stage of wastewater treatment that uses oxygen to encourage growth of bacteria to break down impurities in the wastewater

Sewage – solid and liquid waste material from homes, stores and industries that flows into underground sewer pipes

Snow – Precipitation in the form of crystals of frozen water

Solvent – Liquid used to remove stains by dissolving them

Storm Drain System – Wastewater system designed to carry storm water runoff, but not sewage, from homes and industry

Storm Water – Water from rains that runs off the land, carrying pollutants into a body of water

Subsidence – Sinking ground caused by too much water removed from underneath it

Tertiary Treatment – Third stage of wastewater treatment that uses advanced equipment and chemicals to get rid of difficult pollutants

Transpiration – Process of plants giving off water vapor from their leaves

Ultraviolet Light Disenfection – High intensity UV lamp bulbs are used to disinfect the water.

Vapor – Water in the form of a gas

Virus – Disease-causing germs

Wastewater – Water that carries people's pollutants; sewage

Wastewater Treatment – Process used to clean wastewater so that it can be discharged into a receiving water

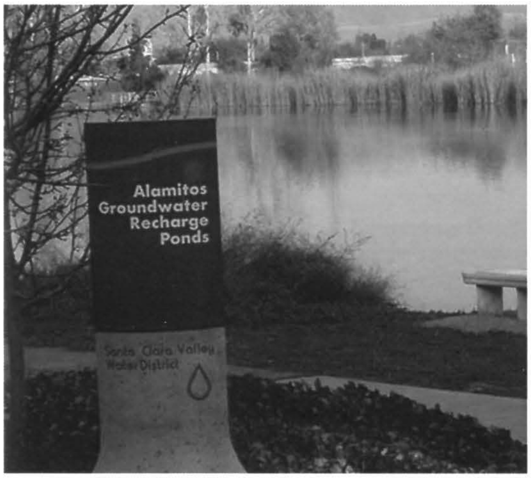
Water Cycle – Process of water movement including evaporation, transpiration, condensation, precipitation and percolation or infiltration

Water Treatment Plant – Facility used to clean water for drinking

Well – Hole drilled in the ground to get water

Santa Clara Valley
Water District℠

inside: Where does our water come from?



Local water

Groundwater and local surface water is the county's original source of water supply. Local rainfall and runoff flows into reservoirs for storage and blending with imported water. The water is released into creeks and ponds to augment natural percolation and maintain groundwater levels. Some of the local surface water is processed at drinking water treatment plants. The treated water is sold to local water retailers such as San Jose Water Company who use their own distribution systems to serve customers. Water pumped from the groundwater aquifer through wells is used by private well owners, farmers, and water retailers.

Imported water

Half of Santa Clara County's water supply comes from hundreds of miles away - first as snow or rain in the Sierra Nevada range of northern and eastern California, then as water in rivers that flow into Sacramento-San Joaquin River Delta or directly to water conveyance systems. Often called "imported water", it is brought into the county through the complex infrastructure of the State Water Project, the federal Central Valley Project and San Francisco's Hetch Hetchy system.

Recycled water

A small, but important and growing source by water is recycled water. Used primarily for irrigation, industry and agriculture, recycled water is wastewater that has been purified to meet strict standards set by the California Department of Health Services. Using recycled water helps conserve drinking water supplies, provides a dependable, drought-proof, locally-controlled water supply, reduces dependency on imported water and groundwater and helps preserve our saltwater and tidal habitat by reducing freshwater discharge to the bay.

Save water

Did you know that only less than 1 percent of all water on Earth is suitable for use by people? The rest is salt water, like the kind found in the ocean, or is permanently frozen. We can't drink it, wash with it or use it to water plants. With California in the midst of drought, we must be careful not to waste this precious limited resource.

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